CLAIMS

1. A diesel engine comprising a device for controlling the flow of injected fuel, comprising:

at least one fuel injector feeding a combustion chamber; and

a processor controlling said at least one fuel injector and comprising:

means for controlling a series of injector activations of different durations;

means for measuring a minimal activation period ($\Delta T_{MA}+\Delta t$) between the issuance of a command and the start of an injection;

means for subsequently controlling said at least one injector according to the minimal activation period measured; and

means for determining the release of heat (δQ) produced by the mixture of fuel and air in the combustion chamber and measuring the minimal activation period based on the determination.

2. The engine of claim 1, wherein said means for controlling comprises means for modifying a predetermined minimal activation period ($\Delta T_{MA}+\Delta t$) of an offset (Δt) based on the minimal activation period measured.

3. The engine of claim 2, wherein said means for measuring utilizes activations that are different from the activations controlling principal fuel injections intended to generate a driving torque.

4. The engine of claim 3, wherein the activations correspond to pilot injections intended to establish optimum temperature conditions in the cylinder for the principal fuel injections.

5. The engine of claim 1, wherein said processor comprises means for determining the heat release from measurements of pressure in the combustion chamber.

6. The engine of claim 5, wherein said means for determining the heat release from the measurements of pressure in the combustion chamber utilizes a formula of the type:

$$\delta Q=1/(\gamma-1)*(\gamma\ P*dV+V*dP),$$

where δQ is the heat release, P and V are the pressure and the volume of this mixture in the chamber, respectively, dP and dV are variations in P and V, respectively, and γ is a constant.

7. The engine of claim 1, wherein said means for determining comprises means for determining the minimal activation period measured by determining the mean heat release in an interval of an engine cycle including a pilot injection.

8. The engine of claim 1, further comprising a common rail for feeding a plurality of injectors.

9. The engine of claim 1, wherein said processor comprises means for performing the series of injector activations at constant supply pressure and engine speed.

10. The engine of claim 1, wherein said processor comprises means for performing the series of injector activations in a periodical manner.

11. A processor for controlling the flow of injected fuel in an internal combustion engine, comprising:

means for controlling a series of activations of different duration of an injector feeding a combustion chamber;

means for measuring a minimal activation period ($\Delta T_{MA}+\Delta t$) between the issuance of a command and the flow of injected fuel;

means for subsequently controlling said injector according to the minimal activation period measured; and

means for determining the release of heat (δQ) produced by the mixture of fuel and air in the combustion chamber and measuring the minimal activation period based on the determination.

12. The processor of claim 11, further comprising means for modifying a predetermined minimal activation period (ΔT_{MA}) of an offset (Δt) based on the minimal activation period measured.

13. The processor of claim 11, wherein said means for measuring utilizes activations that are different from the activations controlling principal fuel injections intended to generate a driving torque.

14. The processor of claim 13, wherein the activations correspond to pilot injections intended to establish optimum temperature conditions in the cylinder for the principal injections.